

DRAFT

New York State Department of Transportation  
Yellow Flag NB2358W020

By: Alex Abreu

Flag Date: June 05, 2023

Superseding Information:

No Flags Superseded

Structure Information

BIN: 1065318

Feature Carried: 278I278IX2M23027

Feature Crossed: 6TH AVENUE

Orientation: 8 - NORTHWEST

Region: 11 - NEW YORK CITY

County: KINGS

Political Unit: City of NEW YORK

Approximate Year Built: 1962

Posted Load Matches Inventory : Yes

Bridge Load Posting (Tons) : Not Posted for Load

Primary Owner: New York State Department of Transportation

Primary Maintenance Responsibility: 12 - State - Subcontracted to another Party

Typical or Main Span Type: 3 - Steel, 02 - Stringer/Multi-Beam or Girder

This Bridge is not a Ramp

Number of Spans: 322

Verbal Notification Information

Person Notified: Muhammad Mubeen

Date: June 19, 2023 12:05:00 PM

Of: NYSDOT Region 11

Signature Information

Signature:

Date:

Reviewed By: Robert Kemp

Date: June 22, 2023

Attachments: 8

**Flagged Elements**

Parent Element	Element	Total Quantity	Unit
<b>Span Number : 164</b>			
	107 - Steel Open Girder/Beam	729	ft
	PR831 - Steel Beam End	34	each

**Flagged Condition Description**

This Yellow Flag No. NB2358W020 is NEW.

Location: Span 164, Girder G11 at Pier 164.

**Description:**

The end of Girder G11 in Span 164 at Pier 164 exhibits severe section loss for the full height of the web above the bearing behind the guide angles for 27" high x 7" wide with 0.20"-0.41" remaining thickness measured (RTM), resulting in approximately 39% to 70% section loss with average 54% section loss for full girder web height. The lower web of the girder above the bottom flange exhibits 10%-25% section loss for 60"L x 4"H area with 47% localized section loss in the 8" high web area above the bearing (average 25% section loss in the lower web area). (Photos #4 and #5) The girder web exhibits one corrosion hole for 3"H x 1-1/4"W at the girder end behind the guide angle approximately 8" from the bottom flange (Photo #6). The top of the web at the end of the girder adjacent to the top cope exhibits 6-1/2"L x 1"H cut out area (Photo #7). The bottom flange of the girder exhibits up to 15% section loss for 24"L for the full width of the flange (Photo #8). The overall shear web area section loss is approximately 62%. The overall web bearing area section loss is approximately 23%. (refer to Flag Condition Sketch Photo #2 for more details)

This is a newly flagged condition.

**Notes:**

1. Adjacent Girder G10 exhibits approximately 33% localized section loss in the 8" web area above the bearing. The lower web of the girder above the bottom flange exhibits 10%-25% section loss for 60"L x 4"H. The full height of the girder web along the guide angles exhibits 20%-35% section loss for up to 14" wide.
2. Adjacent Girder G12 has previously installed steel reinforcement plates and angles installed which are in good condition.
3. The superstructure members within the span have been newly cleaned and painted.
4. Both guide angles at the above flagged girder location exhibit severe section loss with corrosion holes. The left guide angle exhibits 3"H x 4"W corrosion hole at the bottom, 4"H x 3"W corrosion hole at mid-height, and 3" diameter corrosion hole at top with knife edging adjacent to the holes and up to 40% section loss in remaining area for full height. The right guide angle exhibits 11"H x 3"W corrosion hole at the bottom and 4"H x 2"W corrosion hole at the top with knife edging adjacent to the holes and up to 60% section loss in remaining area for full height.
5. A double lane left lane closure on 3rd Avenue EB roadway and 35ft bucket truck are required to access this location.
6. The previous 2021 Biennial Inspection report stated the following defects at the above flagged girder:  
Girder G11 exhibits 20% section loss for 2' long x 4" high area at the lower web above the bottom flange and 60% section loss (approximately 0.31" remaining web thickness measured) at the web for 6" high x 2" wide area behind the guide angle approximately 5" from the bottom flange. The overall shear web area section loss is approximately 20% so does not warrant a Yellow Flag.

## Flag Photographs

Photo Number: **1**

Photo Filename: **23\_Flag Location Plan.jpg**

Gowanus Expressway  
2023 Biennial Inspection - Field Sketch

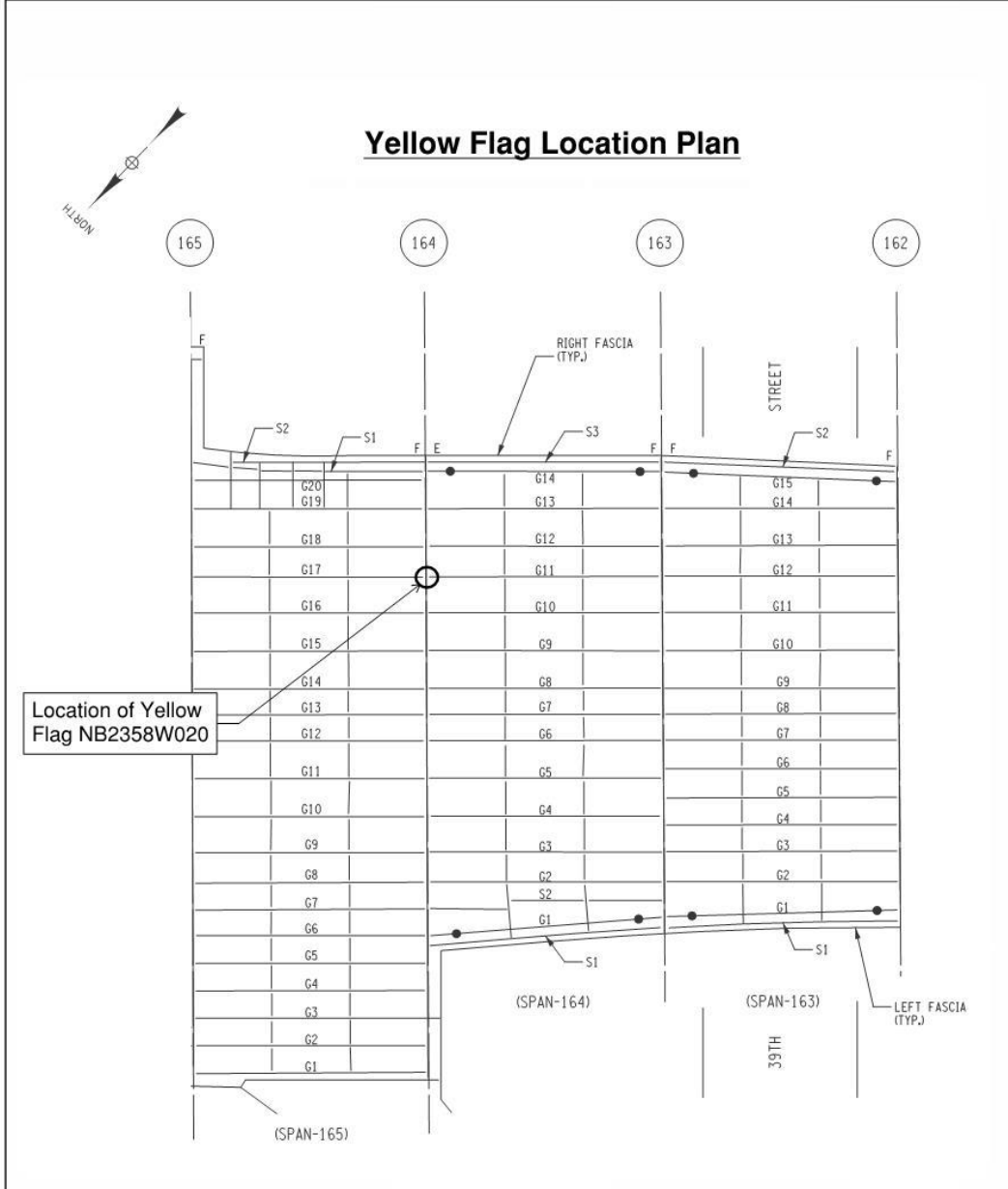
BIN: 1065318

Team: AA/TS

Date: 06/05/2023

Span: 164

Location: Girder G11 at Pier 164



**Attachment Description: Flag Location Plan**

Photo Number: 2

Photo Filename: 23\_Span 164\_Pier 164\_Girder G11\_Connection

Gowanus Expressway  
2022 Biennial Inspection - Field Sketch

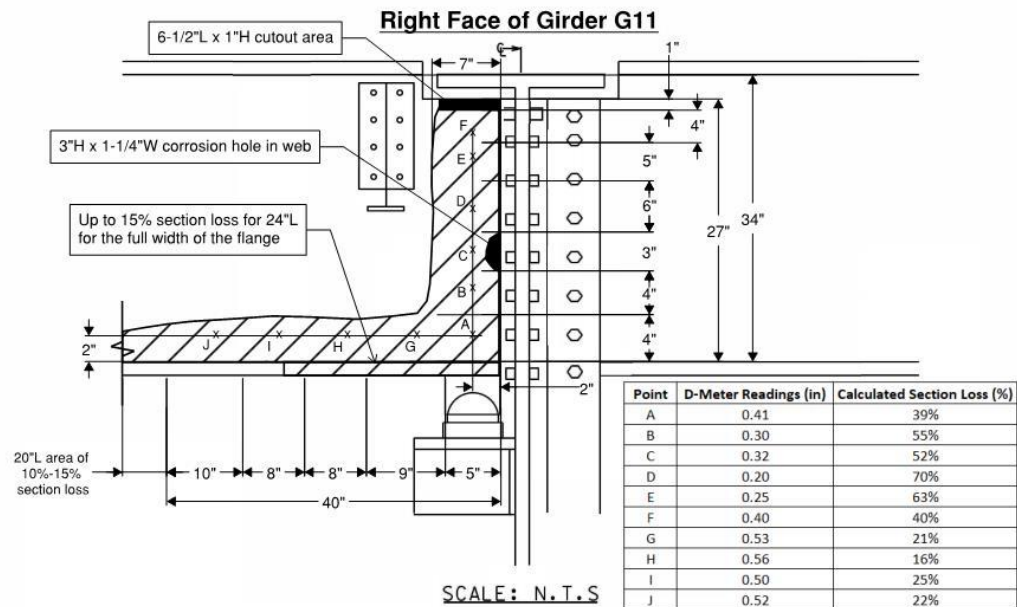
BIN: 1065318

Team: AA/TS

Date: 06/05/2023

Span: 164

Location: Girder G11 at Pier 164

**Section Loss Calculations:**

Shear web area:

$$4'' \times 0.41'' [\text{Point A}] + 4'' \times 0.30'' [\text{Point B}] + 3'' \times 0'' [\text{corrosion hole}] + 6'' \times 0.20'' [\text{Point D}] + 5'' \times 0.25'' [\text{Point E}] + 4'' \times 0.40'' [\text{Point F}] + 1'' \times 0'' [\text{cutout area}] = 6.89 \text{ in}^2$$

Overall shear web area section loss:

$$((27'' \times 0.667'') - 6.89 \text{ in}^2) / (27'' \times 0.667'') \times 100 = 62\%$$

Web bearing area:

$$5'' \times 0.41'' [\text{Point A}] + 9'' \times 0.53'' [\text{Point G}] + 8'' \times 0.56'' [\text{Point H}] + 8'' \times 0.50'' [\text{Point I}] + 10'' \times 0.52'' [\text{Point J}] = 20.5 \text{ in}^2$$

Overall web bearing area section loss:

$$((40'' \times 0.667'') - 20.5 \text{ in}^2) / (40'' \times 0.667'') \times 100 = 23\%$$

Localized section loss in 8" high web area directly above bearing:

$$((8'' \times 0.667'') - (4'' \times 0.41'' [\text{Point A}] + 4'' \times 0.30'' [\text{Point B}])) / (8'' \times 0.667'') \times 100 = 47\%$$

Average section loss for full web height (Points A to F):  $(39\% + 55\% + 52\% + 70\% + 63\% + 40\%) / 6 = 54\%$ Average section loss in the lower web over 40" long area (Points A and G to J):  $(39\% + 21\% + 16\% + 25\% + 22\%) / 5 = 25\%$ **Notes:**

-As measured web thickness is approximately 0.667".

-As per the above sketch, the section loss in the lower web of the girder continues beyond 40" long from the girder end. No D-meter readings were obtained in this 20" long area due to the fact only the D-meter readings within the 40" long area were used for the overall web bearing area section loss (as per NYSDOT guidelines).

-Guide angle not shown in sketch due to clarity purposes to show section loss and D-meter readings in girder web. The guide angle is 19"H x 5"W starting approximately from the bottom of the girder web. The left guide angle exhibits 3"H x 4"W corrosion hole at the bottom, 4"H x 3"W corrosion hole at mid-height, and 3" diameter corrosion hole at top with knife edging adjacent to the holes and up to 40% section loss in remaining area for full height. The right guide angle exhibits 11"H x 3"W corrosion hole at the bottom and 4"H x 2"W corrosion hole at the top with knife edging adjacent to the holes and up to 60% section loss in remaining area for full height.

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**Attachment Description: Flag Condition Sketch**



# DRAFT

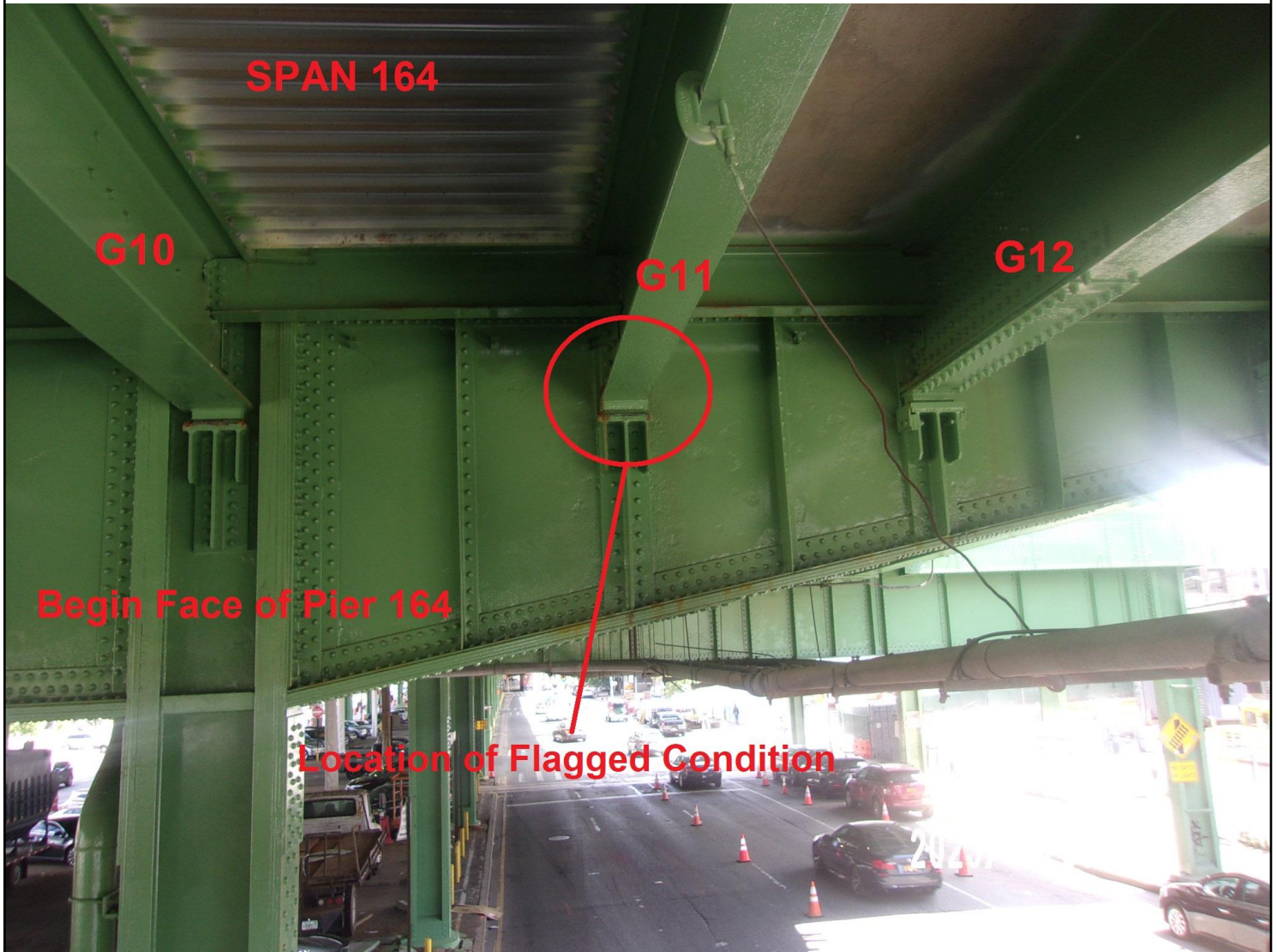
Yellow Flag NB2358W020

BIN 1065318

Flag Date: June 05, 2023

Photo Number: 3

Photo Filename: 23\_113\_7538.JPG



**Attachment Description:** General view of the flagged condition at Girder G11 in Span 164 at Pier 164. Looking End.

# DRAFT

Yellow Flag NB2358W020

BIN 1065318

Flag Date: June 05, 2023

Photo Number: 4

Photo Filename: 23\_113\_7523.JPG



**Attachment Description:** The left face of Girder G11 in Span 164 at Pier 164. The girder exhibits section loss for the full web height for 39%-70% section loss with average 54% section loss. The lower web exhibits 10%-25% section loss with 47% localized section loss in the web above the bearing. The top of the web exhibits a cut out area. Looking Right.



# DRAFT

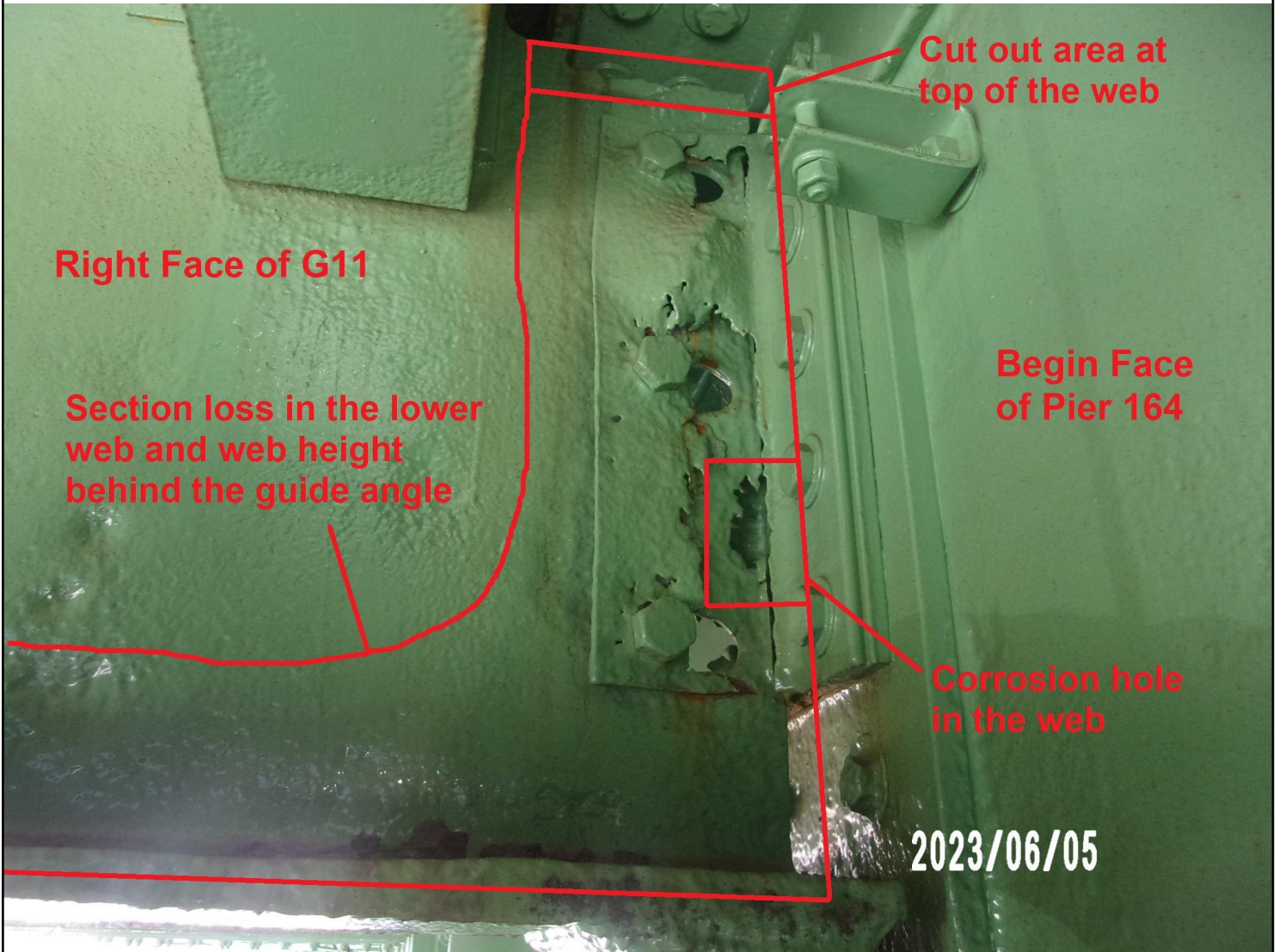
Yellow Flag NB2358W020

BIN 1065318

Flag Date: June 05, 2023

Photo Number: 5

Photo Filename: 23\_113\_7530.JPG



**Attachment Description:** The right face of Girder G11 in Span 164 at Pier 164. The girder exhibits section loss for the full web height for 39%-70% section loss with average 54% section loss. The lower web exhibits 10%-25% section loss with 47% localized section loss in the web above the bearing. The girder web exhibits a corrosion hole behind guide angle. The top of the web exhibits a cut out area. Looking Left.

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Yellow Flag NB2358W020

BIN 1065318

Flag Date: June 05, 2023

Photo Number: 6

Photo Filename: 23\_113\_7531.JPG



**Attachment Description:** The right face of Girder G11 in Span 164 at Pier 164. Close up view of the 3"H x 1-1/4"W corrosion hole in the girder web behind the guide angle. Looking Left.



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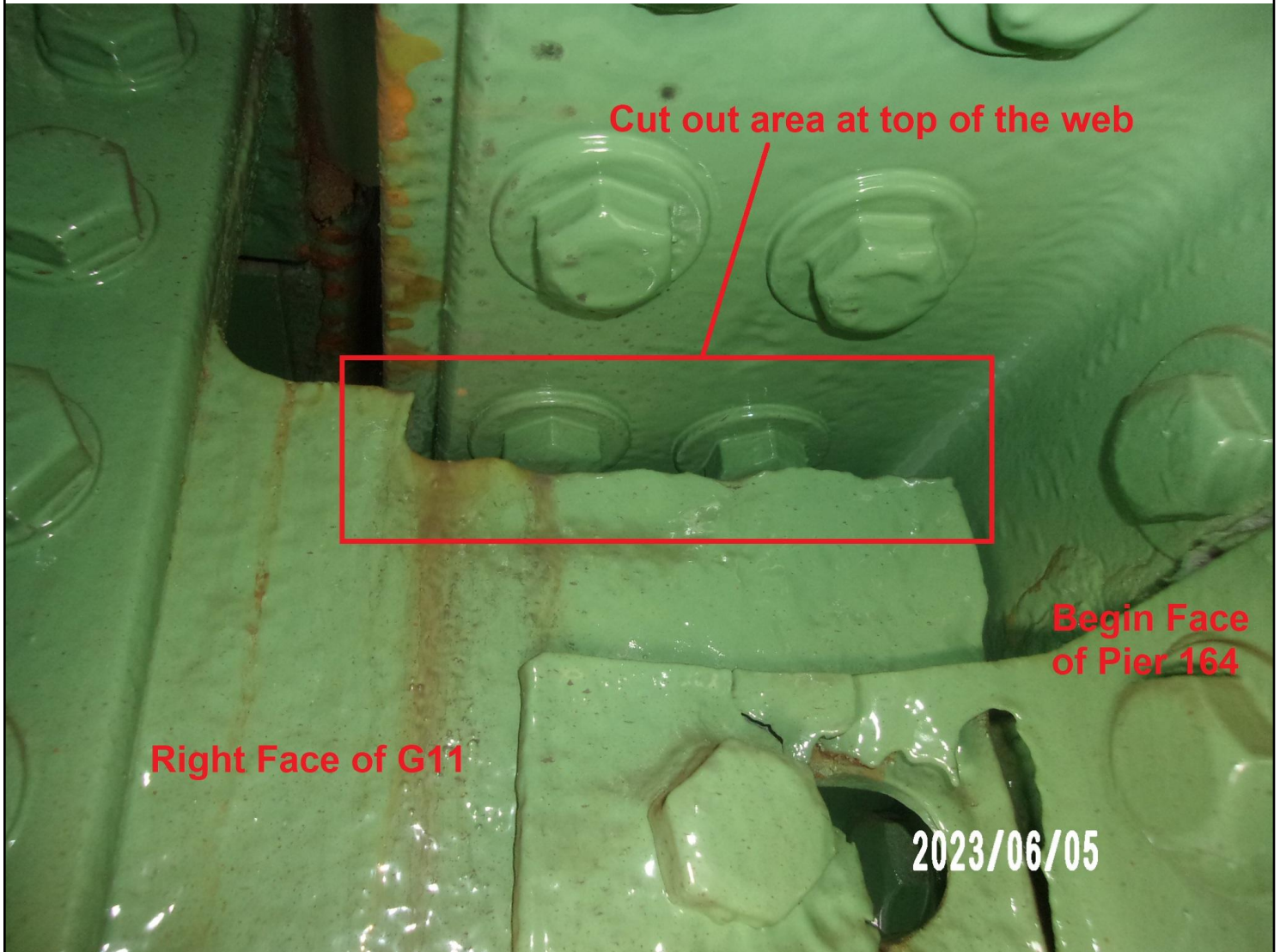
Yellow Flag NB2358W020

BIN 1065318

Flag Date: June 05, 2023

Photo Number: 7

Photo Filename: 113\_7533.JPG



**Attachment Description:** The right face of Girder G11 in Span 164 at Pier 164. Close up view of the 6-1/2"L x 1"H cut out area in the top of the girder web adjacent to the top cope. Looking Left.

# DRAFT

Yellow Flag NB2358W020

BIN 1065318

Flag Date: June 05, 2023

Photo Number: 8

Photo Filename: 23\_113\_7536.JPG



**Attachment Description:** The underside of Girder G11 in Span 164 at Pier 164. The bottom flange exhibits up to 15% section loss for 24"L for the full width of the flange. Looking End.